

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT				1. CONTRACT ID CODE N/A		PAGE 1 OF PAGES 48	
2. AMENDMENT/MODIFICATION NO. 0004		3. EFFECTIVE DATE 18 JUN 03		4. REQUISITION/PURCHASE REQ. NO. N/A		5. PROJECT NO. (If applicable)	
6. ISSUED BY DEPARTMENT OF THE ARMY CORPS OF ENGINEERS SACRAMENTO 1325 J STREET SACRAMENTO, CALIFORNIA		CODE		7. ADMINISTERED BY (If other than Item 6) SEE ITEM 7		CODE	
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)				<input checked="" type="checkbox"/> (✓) <input checked="" type="checkbox"/> (X)		9A. AMENDMENT OF SOLICITATION NO. DACW07-03-B-0002	
						9B. DATED (SEE ITEM 11) 3 JUN 2003	
						10A. MODIFICATION OF CONTRACTS/ORDER NO. N/A	
						10B. DATED (SEE ITEM 13) N/A	
CODE		FACILITY CODE					

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ☒ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(✓)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

**SUISUN BAY CHANNEL MULTI-YEAR MAINTENANCE DREDGING
CONTRA COSTA & SOLANO COUNTIES, CALIFORNIA**

1 ENCL

1) PRICING SCHEDULE, 01005, 01305, 01330 AND 02480.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)		16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	
15C. DATE SIGNED		16C. DATE SIGNED	

Section 00010 - Solicitation Contract Form

PRICING SCHEDULE

BASE YEAR

CONTRACTOR SHALL FURNISH ALL PLANT, LABOR, MATERIAL, EQUIPMENT, ETC. NECESSARY TO PERFORM ALL WORK IN STRICT ACCORDANCE WITH THE TERMS AND CONDITIONS SET FORTH IN THE CONTRACT TO INCLUDE ALL ATTACHMENTS THERETO.

LINE

ITEM			UNIT OF	UNIT	TOTAL
NO.	DESCRIPTION	QUANTITY	MEASURE	PRICE	PRICE
0001	MOBILIZATION/ DEMobilIZATION	1	LUMP SUM	LUMP SUM	\$_____
0002	DREDGING SUISUN BAY CHANNEL & DISPOSING OF MATERIAL AT SHERMAN ISLAND. DISPOSAL SUBJECT TO SALINITY LEVELS <15,000 MICROMHOS/CM				
0002A	0 TO 100,000 CY (STANDARD)	100,000*	CY	\$_____	\$_____
0002B	100,000 TO 125,000 CY (CONTINGENCY)	25,000*	CY	\$_____	\$_____
0002C	OVER DEPTH	40,000*	CY	\$_____	\$_____
0003	TAKE 1 EACH COMPOSIT SAMPLE FROM EVERY FILLED SCROW. ANALYZE THE SAMPLES FOR PERCENT MOISTURE. POREWATER SHALL BE EXTRACTED USING A VACUUM FILTRATION AND THE UNDILUTED PORE WATER SHALL BE ANALYZED FOR ELECTRICAL CONDUCTIVITY. PROVIDE REPORTS AS DESCRIBED IN SECTION 02480, 7.1.1 DREDGE MATERIAL MONITORING	60	EA	\$_____	\$_____
0004	TAKE 1 EACH COMPOSIT SAMPLE PER DAY. ANALYZE AS FOLLOWS: POREWATER SHALL BE EXTRACTED USING A VACUUM FILTRATION AND THE UNDILUTED PORE WATER SHALL BE ANALYZED FOR ELECTRICAL CONDUCTIVITY,				

TOTAL DISSOLVED SOLIDS.
 CHLORIDE AND BROMIDE.
 PROVIDE REPORTS AS DESCRIBED
 IN SECTION 02480, 7.1.1
 DREDGE MATERIAL
 MONITORING

55 EA \$_____ \$_____

SUBTOTAL AMOUNT BASIC YEAR \$_____
 (ITEMS 0001 THRU 0004)

OPTION 1

NOTE TO BIDDER: THE FOLLOWING ARE UNIT PRICE ITEMS ONLY. THE BID PRICES FOR THESE FOLLOWING ITEMS WILL BE USED IF THE SALINITY LEVELS EXCEED 15,000 MICROMHOS/CM. IF THIS IS THE CASE, THEN THE SF 16 OPEN WATER DISPOSAL SITE MUST BE UTILIZED.

0005 DREDGING SUISUN BAY
 CHANNEL & DISPOSING
 OF MATERIAL AT SF 16
 AQUATIC DISPOSAL AREA

0005A 0 TO 100,000 CY 1 CY \$_____ \$_____

0005B 100,000 TO
 125,000 CY 1 CY \$_____ \$_____

0005C OVER DEPTH
 (40,000 CY) 1 CY \$_____ \$_____

OPTION 1 SUBTOTAL AMOUNT BASIC YEAR \$_____
 (ITEMS 0005A THRU 0005C)

OPTION 2

ITEM 0006 IS AN OPTIONAL ITEM AND CAN BE EXERCISED BY THE CONTRACTING OFFICER WITH 2 DAYS PRIOR.

0006 DREDGING AND FILLING
 DWR PROVIDED SCOWS.
 TRANSPORT.

1,000* CY \$_____ \$_____

OPTION 2 SUBTOTAL AMOUNT BASIC YEAR \$_____
 (ITEM 0006)

TOTAL AMOUNT BASIC YEAR \$_____
 (ITEMS 0001 THRU 0006)

* QUANTITY IS AN ESTIMATED AMOUNT. SEE SECTION 00700, FAR 52.211-18, FOR VARIATION IN ESTIMATED QUANTITY CONTRACT CLAUSE.

1. Prices must be submitted on all individual items of this Pricing Schedule. Failure to do so may be cause for rejection of bids.

2. If a modification to a price based on unit price is submitted which provides for a lump sum adjustment to the total estimated price, the applications of the lump sum adjustment to each unit price in the Pricing Schedule must be stated. If it is not stated, the bidder/offeror agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the Pricing Schedule.

3. The lump sum, "LS", line items above are not "estimated quantity" line items and therefore are not subject to the Variation in Quantity contract clause.

4. The successful bidder/offeror grants the options listed in the Pricing Schedule to the Government. The option may be exercised at any time during the duration of the contract. Exercise of the option occurs upon mailing of written notice to the Contractor. Exercise will be made by the Contracting Officer. The price for exercise of the option includes all work and effort associated with the scope of that item. For determination of lowest bid, see paragraph titled EVALUATION OF OPTIONS in Section 00100 of this solicitation. No additional time for contract completion will be allowed when an option is exercised. The given contract completion time was formulated to include time necessary to perform all option work.

5. EFARS 52.214-5000 ARITHMETIC DISCREPANCIES (MAR 1995)

(a) For the purpose of initial evaluation of bids/offers, the following will be utilized in resolving arithmetic discrepancies found on the face of the Pricing Schedule as submitted by bidders/offerors:

- (1) Obviously misplaced decimal points will be corrected;
- (2) Discrepancy between unit price and extended price, the unit price will govern;
- (3) Apparent errors in extension of unit prices will be corrected;
- (4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid/offer evaluation, the Government will proceed on the assumption that the bidder/offeror intends the bid/offer to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid/offer will be so reflected on the abstract of bids/offers.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid/offer is low.

6. Notwithstanding any other provisions of this solicitation, the award will be made to the lowest responsible and responsive bidder for the Base Year Schedule and the Option Year Schedule whichever is in the best interest of the Government.

Bidders must submit prices on all items, both Schedules.

PRICING SCHEDULE

OPTION YEAR 1

CONTRACTOR SHALL FURNISH ALL PLANT, LABOR, MATERIAL, EQUIPMENT, ETC. NECESSARY TO PERFORM ALL WORK IN STRICT ACCORDANCE WITH THE TERMS AND CONDITIONS SET FORTH IN THE CONTRACT TO INCLUDE ALL ATTACHMENTS THERETO.

LINE ITEM NO.	DESCRIPTION	QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
1001	MOBILIZATION/ DEMObILIZATION	1	LUMP SUM	LUMP SUM	\$_____
1002	DREDGING SUISUN BAY CHANNEL & DISPOSING OF MATERIAL AT SF 16 AQUATIC DISPOSAL SITE				
1002A	0 TO 100,000 CY (STANDARD)	100,000*	CY	\$_____	\$_____
1002B	100,000 TO 125,000 CY (CONTINGENCY)	25,000*	CY	\$_____	\$_____
1002C	OVER DEPTH	40,000*	CY	\$_____	\$_____

SUBTOTAL AMOUNT OPTION YEAR 1 \$_____

(ITEMS 1001 THRU 1002C)

OPTION 1

NOTE TO BIDDER: THE FOLLOWING ITEMS ARE UNIT PRICE ITEMS ONLY. THE BID PRICES FOR THESE FOLLOWING ITEMS WILL BE USED IF THE GOVERNMENT DECIDES THAT THE DREDGED MATERIALS SHALL BE TAKEN TO AN ALTERNATE SITE.

1003	ADDITIONAL MOBILIZATION AND DEMOBILIZATION	1	LUMP SUM	LUMP SUM	\$_____
1004	DREDGING SUISUN BAY CHANNEL & DISPOSING OF MATERIAL AT WINTER ISLAND				
1004A	0 TO 100,000 CY (STANDARD)	1	CY	\$_____	\$_____
1004B	100,000 TO 125,000 CY (CONTINGENCY)	1	CY	\$_____	\$_____
1004C	OVER DEPTH (40,000 CY)	1	CY	\$_____	\$_____

SUBTOTAL AMOUNT OPTION YEAR 1 \$ _____
(ITEMS 1003 THRU 1004C)

TOTAL AMOUNT OPTION YEAR 1 \$ _____
(ITEMS 1001 THRU 1004C)

* QUANTITY IS AN ESTIMATED AMOUNT. SEE SECTION 00700, FAR 52.211-18, FOR VARIATION IN ESTIMATED QUANTITY CONTRACT CLAUSE.

1. Prices must be submitted on all individual items of this Pricing Schedule. Failure to do so may be cause for rejection of bids.
2. If a modification to a price based on unit price is submitted which provides for a lump sum adjustment to the total estimated price, the applications of the lump sum adjustment to each unit price in the Pricing Schedule must be stated. If it is not stated, the bidder/offeror agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the Pricing Schedule.
3. The lump sum, "LS", line items above are not "estimated quantity" line items and therefore are not subject to the Variation in Quantity contract clause.
4. The successful bidder/offeror grants the options listed in the Pricing Schedule to the Government. The option may be exercised at any time during the duration of the contract. Exercise of the option occurs upon mailing of written notice to the Contractor. Exercise will be made by the Contracting Officer. The price for exercise of the option includes all work and effort associated with the scope of that item. For determination of lowest bid, see paragraph titled EVALUATION OF OPTIONS in Section 00100 of this solicitation. No additional time for contract completion will be allowed when an option is exercised. The given contract completion time was formulated to include time necessary to perform all option work.
5. EFARS 52.214-5000 ARITHMETIC DISCREPANCIES (MAR 1995)
 - (a) For the purpose of initial evaluation of bids/offers, the following will be utilized in resolving arithmetic discrepancies found on the face of the Pricing Schedule as submitted by bidders/offerors:
 - (1) Obviously misplaced decimal points will be corrected;
 - (2) Discrepancy between unit price and extended price, the unit price will govern;
 - (3) Apparent errors in extension of unit prices will be corrected;
 - (4) Apparent errors in addition of lump-sum and extended prices will be corrected.
 - (b) For the purpose of bid/offer evaluation, the Government will proceed on the assumption that the bidder/offeror intends the bid/offer to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid/offer will be so reflected on the abstract of bids/offers.
 - (c) These correction procedures shall not be used to resolve any ambiguity concerning which bid/offer is low.

*6. Notwithstanding any other provisions of this solicitation, the award will be made to the lowest responsible and responsive bidder for the Base Year Schedule and the Option Year Schedule whichever is in the best interest of the Government.
Bidders must submit prices on all items, both Schedules.*

TECHNICAL CLAUSES

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01005

SUPPLEMENTARY CONDITIONS

1. CONSTRUCTION RIGHTS-OF-WAY.

The construction rights-of-way required to perform the work under this contract will be furnished without cost to the Contractor

2. PERMITS.

2.1 Under Contract Clause "PERMITS AND RESPONSIBILITIES," the Contractor is obligated to obtain and comply with all licenses and permits required by Federal, State, and local laws, codes, and regulations.

2.2 The following dredging permits have been obtained:

2.2.1 The Government has obtained the necessary dredging permits for dredging and disposal of dredged materials in the Government-furnished open water disposal area.

2.3 The Contractor shall be responsible for making his own arrangements for permits, other than those listed herein, required to complete the work under this contract.

3. ORDER OF WORK.

3.1 General. With reference to Contract Clause "SCHEDULE FOR CONSTRUCTION CONTRACTS" and Special Clause "COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK," the Contractor shall mobilize adequate labor, equipment, and supplies and make a determined and continuous effort to complete the contract work within the time specified.

3.2 Mobilization shall commence not later than three (3) calendar days after date of receipt of notice to proceed. Dredging shall commence not later than ten (10) calendar days after the date of receipt of notice to proceed.

3.2.1 Mobilization shall consist of all work required in preparing the Contractor's plant and equipment; moving such plant, equipment, supplies and incidentals onto the jobsite and

preparation for dredging, disposal and construction operations. The Contractor's plant and equipment proposed for use in the work shall be of sufficient size, capacity and efficiency to meet the job requirements and will be subject to approval by the Contracting Officer. Demobilization shall consist of all work required to remove the Contractor's plant, equipment unused supplies and incidentals from the jobsite at the completion of the contract work, including cleaning up. The Contractor shall agree that the construction plant, equipment, and material will not be removed from the site without the written permission of the Contracting Officer; and agree that structures and facilities prepared or erected for the prosecution of the contract work will be maintained and not dismantled prior to the completion and acceptance of the entire work, without the written permission of the Contracting Officer.

3.3 Open Water Disposal Site Limitations. The Government-furnished open water disposal sited shown on the drawings will be available for Contractor use 24-hours/day, 7 days/week for the duration of the project.

3.4 Upland Disposal Site Limitations. The Government-furnished upland disposal sites will be available for Contractor use 24 hours/day, 7 days/week for the duration of the project.

3.4.1 The Contractor shall verify that egress in the channels adjacent to the disposal cells is compatible with his proposed plant for accomplishing the haul and disposal. There may be restrictive entrances and access, particularly on the west side of the island. Such restrictions or lack of access may require pumping from a remote location or other means and shall not be cause for a claim against the Government.

3.4.2 The Contractor shall evenly dispose of the dredged material within each cell of the upland disposal site. At the sole discretion of the Contracting Officer, the Contractor shall relocate his disposal plant to alternate disposal cells a maximum of two times, as selected by the Contracting Officer, and at no additional cost to the Government.

3.4.3 The Contractor shall select disposal plant and equipment which will not damage the surrounding levee or containment berm of the upland disposal site. Any and all costs due to flooding of the upland disposal site caused by the Contractor's operation will be the responsibility of the Contractor. The Contractor shall restore the existing levees and containment dikes to their pre-contract condition if degraded or damaged due to the Contractor's operation.

3.4.4 The Contractor shall completely fill the Cells in sequence as determined by the Contracting Officer. For disposal instruction see Drawing Sheets 12,13.

3.5 Window Working Period Under Environmental Restrictions. Dredging and disposal operations shall only occur from 1 June through 30 September of any year. Mobilization

and demobilization operations are not subject to these time restrictions.

3.6 Dredging Method: Clamshell Dredge To mitigate the impacts on federally and state listed endangered species, the use of a clamshell dredge for this project is required and consistent with conservation requirements.

4. GENERAL SAFETY REQUIREMENTS.

4.1 General. The Contractor's attention is directed to the Corps of Engineers Manual, EM 385-1-1, "Safety and Health Requirements," dated 3 September 1996 which is included in the contract by reference in the Contract Clause "ACCIDENT PREVENTION." The Safety and Health Requirements will be strictly enforced under this contract, including but not limited to requirements for "Floating Plant and Marine Activities" and "Machinery and Mechanical Equipment" and Coast Guard approved survival suits for all personnel on board the disposal vessels. EM 385-1-1 and its changes are available at <http://www.hq.usace.army.mil> (at the HQ home page, select Safety and Occupational Health). The Contractor shall be responsible for complying with the current edition and all changes posted on the web as of the effective date of this solicitation.

4.1.1 Accident Prevention Plan. Prior to commencement of work, the Contractor shall submit an accident prevention plan written for the specific work and hazards of the contract, which shall be subject to review and acceptance by the Contracting Officer. Guidelines for the preparation of the accident prevention plan are in Appendix A of EM 385-1-1, a sample copy of which is attached in Appendix 8.

4.1.2 Hazard Analysis. A job hazard analysis shall be prepared for each major phase of work and submitted for review and acceptance by the Contracting Officer prior to commencement of work. The outline for the analysis is shown in Figure 1-1 in Appendix 8.

4.2 Occupational Safety and Health Act (OSHA) Standards. The "Occupational Safety and Health Act (OSHA) Standards for Construction" (Title 29, Code of Federal Regulations Part 1926 as revised from time to time) and the Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, dated 3 September 1996, are both applicable to this contract. The more stringent requirements of the two standards will be applicable.

4.3 Fire Control.

4.3.1 General. The Contractor shall supply all fire fighting equipment, supplies and personnel and perform all work required by Federal, State and local laws and regulations. Delays due to fire will not be the basis of claim by the Contractor for additional compensation.

4.3.2 Fire Extinguishers. The following policy applies to fire extinguishers for the Contractor's equipment.

(1) Each piece of internal combustion engine drive equipment shall be equipped with a fire extinguisher in accordance with recommendation of the National Fire Protection Association as appropriate.

(2) The minimum approved rating of new extinguishers should be not less than 5-B:C (See NFPA No. 10-1988, OSHA 1926.150, OSHA 1926.151, EM 385-1-1 Section 9).

4.4 Equipment Certification and Inspection.

4.4.1 SEAWORTHINESS CERTIFICATION. Before any plant or equipment, including hydrographic survey equipment and crew boat, is put into use on the job, it shall be inspected and tested by the Contractor's operator of the plant or equipment or the manufacturer's representative, in the presence of the Contractor's Safety Officer. The Contractor shall furnish certification in writing that the plant or equipment is operating within manufacturer's tolerances and specifications, is in safe operating condition, and complies with the applicable safety requirements of the contract. All floating plant or dredges shall have a current Coast Guard certification, ABS classification, or marine survey by a NAMS or SAMS surveyor. All dredges and quarter boats not subject to USCG inspection and certification or not having a current American Bureau of Shipping (ABS) classification shall be inspected in the working mode annually by a marine surveyor accredited by the National Association of Marine Surveyors (NAMS) or the Society of Accredited Marine Surveyors (SAMS) and having at least five years experience in commercial marine plant and equipment. A qualified person shall inspect all other plant annually. The inspection shall be documented, and a copy of the most recent inspection report shall be posted in a public area on board the vessel and a copy shall be furnished to the designated authority upon request. The inspection shall be appropriate for the intended use of the plant and shall, as a minimum, evaluate structural integrity and compliance with NFPA 302, Fire Protection Standard for Pleasure and Commercial Motor Craft. EM 385-1-1, Section 19.A.01.b.

4.4.2 The Floating Plant and Mobile Construction Equipment Inspection Checklist: Using checklist in Appendix 2, an inspection shall be completed for each piece of floating plant and the completed checklist shall be furnished to the Contracting Officer prior to plant use.

4.4.3 Equipment Inspection. After receipt of the certification required in subparagraph "Equipment Certification" and the checklist in subparagraph "The Floating Plant and Mobile Construction Inspection Checklist" above, a Government Inspector shall be given eight hours to inspect all plant and equipment to be utilized. He will inspect to determine conformance with the manufacturer's specifications furnished by the Contractor and with requirements of the manual, "Safety and Health Requirements," EM 385-1-1, dated 3 September 1996. The Contractor will not be permitted to use any plant or equipment on the work under this contract until the Government

has been allowed the opportunity for inspection during normal working hours and necessary repairs made for deficiencies found on the checklist. Any waiver or delay by the Contractor for any reason of this preinspection will not serve to excuse any noncompliance with safety regulations or the justification of a time extension.

4.4.3.1 Cranes. Cranes and crane operators shall be in compliance with EM 385-1-1 for the life of the contract. The Contractor (including subcontractors) shall have cage boom guards, insulating links, or proximity warning devices on cranes that will be working adjacent to power lines. These devices shall not alter the requirements of any other regulation of this part - even if law or other regulation requires such device. Insulating links shall be capable of withstanding a 1-minute dry low frequency dielectric test of 50,000 volts, alternating current (EM 385-1-1, Section 11.E.07). Calibration records or stamped date of required manufacturer inspection of proximity warning devices shall be kept on the crane. Additionally, prior to any work commencing an Activity Hazard Analysis (EM 385-1-1, Fig.1-1) identifying and satisfying EM 385-1-1, Section 11.A.02, 11.E.03, 11.E.04 and 11.E.05 requirements shall be submitted and accepted by the Contracting Officer.

4.5 Accident Reporting. As a part of the requirements for reporting accidents in accordance with EM 385-1-1, Section 1, the Contractor shall; (a) Report all injuries to the designated authority immediately; (b) Submit Corps of Engineers Accident Investigation Report (ENG FORM 3394) within three (3) calendar days; (c) The Prime Contractor shall submit at the 50% point and at 100% of project completion, using form in Appendix 7-1, a written summary of Worker's Compensation Claims filed by workers on the project. The report will include all subcontractors. The main report covering the prime contractor claim will be certified as "correct and true" by the contractor's compensation insurance carrier. The same certification will be required for subcontractor reports; (d) Certify and submit 'Safety Exposure Report' using form in Appendix 13-1, by the 19th of each month.

4.6 Anchoring Discharge Lines. The Contractor shall anchor all discharge lines in a manner that will prevent damage to moored or "underway" vessels. Prior to commencing dredging, the Contractor shall submit an "anchoring plan" for review by the Contracting Officer. No work under this paragraph will be allowed until the Contractor has answered all comments from the review. After the review and finalization of the anchoring plan, the Contractor shall perform, by an independent contract survey, a pre-anchoring hydrographic survey of the pipe alignment. The following survey procedures shall apply: (1) cross-sections shall proceed along centerline at 100' intervals and extend 100' each side of the pipe centerline; (2) cross-sections and soundings shall be plotted at 1"=100'. Thereafter, surveys shall be performed once each month for the life of the contract and shall be submitted to the Contracting Officer through the Contractor Quality Control program. If any survey reflects mounding caused by leakage from the discharge line, the Contractor shall immediately remove the mound materials and dispose of them at the disposal site. If the Contractor elects to place the discharge line within the project dredging limits, both top of anchors and top of discharge line shall be below project standard depth. If alignment of the discharge line is

outside the project dredge limits, the Contractor shall visually mark pipe and anchors as required for safety of all users of the area.

4.7 Fuel oil transfer operations shall conform to U.S. Coast Guard design regulations. (33CFR 156.120) Personnel handling or working in the vicinity of coal tar (creosote) treated piles, bottom debris, dredge material shall be afforded appropriate NIOSH approved personal protective equipment during these exposures (i.e. gloves).

4.8 Navigation. The Contractor's operations shall conform to the U.S. Coast Guard publication "Navigation Rules, International-Inland, COMDT INST M16672.2D," dated 99 MAR 25.

4.8.1 Navigation Aids. Navigation aids located within or near the areas required to be dredged will be removed, if necessary, by the U.S. Coast Guard in advance of dredging operations. The Contractor shall not remove, change the location of, obstruct, willfully damage, make fast to, or interfere with any aid to navigation. The Contractor shall notify the Group Commander, 11th Coast Guard District, Aids to Navigation Office, Building 50-6, Coast Guard Island, Alameda, California 94501-5100, Telephone (510) 437-2976, in writing, with a copy to the Contracting Officer, 30 days in advance of the time he plans to dredge adjacent to any aids which require relocation to facilitate dredging. The Contractor shall contact the U.S. Coast Guard for information concerning the position to which the aids will be relocated.

4.8.2 Dredging Aids. The Contractor shall obtain approval from the U.S. Coast Guard for all buoys, dredging aid markers to be placed in the water and dredging aid markers affixed with a light prior to the installation. Dredging aid markers and lights shall not be colored or placed in a manner that they will obstruct or be confused with navigation aids.

4.8.3 Notice to Mariners. Upon receipt of notice to proceed, the Contractor shall contact the U. S. Coast Guard in sufficient time in advance of dredging operations so that the Coast Guard can include the dredging time and locations in its Notice to Mariners.

4.8.4 Signal Lights. The Contractor shall display signal lights and conduct his operations in accordance with the General Regulations of the Department of the Army and of the Coast Guard governing lights and day signals to be displayed by towing vessels with tows on which no signals can be displayed, vessels working on wrecks, dredges, and vessels engaged in laying cables or pipe or in submarine or bank protection operations, lights to be displayed on dredge pipe lines, and day signals to be displayed by vessels of more than 65 feet in length moored or anchored in a fairway or channel, and the passings by other vessels of floating plant working in navigable channels, as approved by the Secretary of the Army (33 C.F.R. 201.1-201.16) and the Commandant, U.S. Coast Guard (33 C.F.R. 80.18-80.31a and 33 C.F.R. 95.51-95.70).

4.9 Radiological Safety. If the Contractor intends to use any radiological source on the project such use shall be reported by letter to the Contracting Officer. The letter shall state the type or radioactive material in the source, serial number of the equipment, manufacturer, licensee, and the purpose for which the equipment will be used. A copy of the last safety certification(s) from the appropriate Federal and State agencies shall be included with the letter. No radiological materials shall be stored, handled or used on this contract without the prior approval of the Contracting Officer. The storage, handling and use of radioactive materials shall comply with the pertinent State and Federal (EM 385-1-1) safety regulations.

4.10 Floating Plant USCG License Requirements. Each of the Contractor's personnel operating floating plant on the project shall possess a current and valid USCG (U.S. Coast Guard) operator's license for each specific type or class of floating plant to be operated. The Contractor shall submit copies of the licenses to the Contracting Officer prior to operation of floating plant on the project.

4.11 Dive Plan A Dive Plan shall be submitted as a safety submittal item of the contract Accident Prevention Plan. All contract diving operations shall be performed in accordance with, EM 385-1-1, section 30.A.04 dated 3 Sep 1996 or the EM385-1-1 in use at time of the contract award. At a minimum, the dive plan will address items in EM 385-1-1, section 30.A.13.

4.12 Emergency Planning.

4.12.1 Means of Escape for Personnel Quartered, or Working on Floating Plant. Two means of escape shall be provided for assembly, sleeping, and messing areas on floating plants. For areas involving 10 or more persons, both means of egress shall be through standard size doors opening to different exit routes. Where nine or fewer persons are involved, one of the means of escape may be a window (minimum dimensions 24-inches by 36-inches), which leads to a different exit route. Refer to Section 19 of EM 385-1-1.

4.12.2 Emergency Alarms and Signals.

4.12.2.1 Alarms. Emergency alarms shall be installed and maintained on all floating plant requiring a crew where it is possible for either a passenger or crewman to be out of sight or hearing from any other person. The alarm system shall be operated from the primary electrical system with standby batteries on trickle charge that will automatically furnish the required energy during an electrical-system failure. A sufficient number of signaling devices shall be placed on each deck so that the sound can be heard distinctly at any point above the usual background noise. All signaling devices shall be so interconnected that actuation can occur from at least one strategic point on each deck.

4.12.2.2 Signals.

4.12.2.2.1 Fire Alarm Signals. The general fire alarm signal shall be in accordance with paragraph 97.13-15b of the Coast Guard Rules and Regulations for Cargo and Miscellaneous Vessels, Sub-Chapter I, 1 Sep 77 (CG 257).

4.12.2.3 Abandon Ship Signals. The signal for abandon ship shall be in accordance with paragraph 97.13-15c of the Coast Guard Rules and Regulations for Cargo and Miscellaneous Vessels, Sub-Chapter I, 1 Sep 77 (CG 257).

4.12.2.4 Man-Overboard Signal. Hail and pass the word to the bridge. All personnel and vessels capable of rendering assistance shall respond.

4.12.2.5 Hurricane Plan. A detailed plan for protection and evacuation of personnel and the Contractor's plant, in the event of an impending hurricane or storm, is required as an enclosure to the Contractor's Accident Prevention Program. This plan shall be submitted to the Contracting Officer, or his/her representative, for review prior to the pre-construction conference. The plan shall include at least the following:

4.12.2.5.1 The time each phase of the plan will be put in effect. The time shall be the number of hours remaining for the storm to reach the worksite if it continues at the predicted speed and direction.

4.12.2.5.2 The safe harbor for personnel and plant specifically identified.

4.12.2.5.3 The name of the boat, which will be used to move the plant, its type, capacity, speed, and availability.

4.12.2.5.4 The estimated time necessary to move the plant to the safe harbor after movement is started.

4.12.2.6 Hazardous Energy Protection. The Contractor shall develop, implement and maintain at the workplace, a written Control of Hazardous Energy (Lockout/Tagout) System. Refer to Section 12 of EM 385-1-1

5. PUBLIC SAFETY.

Under the Contract Clause "PERMITS AND RESPONSIBILITIES", the Contractor shall provide temporary fencing, barricades, and/or guards as required to provide protection in the interest of public safety. Whenever the Contractor's operations create a condition hazardous to the public, he shall furnish at his own expense and without cost to the Government,

such flagmen and guards as are necessary to give adequate warning to the public of any dangerous conditions to be encountered, and he shall furnish, erect, or maintain such fences, barricades, lights, signs and other devices as are necessary to prevent accidents and to avoid damage or injury to the public. Flagmen and guards, while on duty and assigned to give warning to the public that the project is under construction and of any dangerous conditions to be encountered as a result thereof, shall be equipped with red wearing apparel and a red flag. Signs, flags, lights, and other warning and safety devices shall conform to applicable city, county, and state requirements. Should the Contractor appear to be negligent in furnishing adequate warning and protective measures, the Contracting Officer will direct attention to the existence of a hazard, and the necessary warning and protective measures shall be furnished and installed by the Contractor without additional cost to the Government. The installation of any general illumination shall not relieve the Contractor of his responsibility for furnishing and maintaining all devices necessary to provide protection to all parties concerned.

6. PROJECT SIGN.

The dredge and survey boat shall each carry a project sign mounted at a highly visible location on the dredge and the survey boat as approved by the Contracting Officer. The sign shall be constructed in accordance with Figure No. 1 included at the end of this section. Signs shall be painted semi-gloss white and lettering shall be painted in semi-gloss black. The castle decal will be furnished by the Government. The sign shall be erected as soon as possible and within 5 days after date of commencement under this contract.

6.1 Other Identification. All floating plant, including survey vessels, shall carry signs, both port and starboard, identifying that they are working under Corps of Engineers contract. The signs shall have red block lettering, not less than six inches high with the wording "U.S. ARMY CORPS OF ENGINEERS CONTRACT NO. DACW07-03-C-__". Sign background shall be white. For project signs on survey vessels, tugs and crew boats, the Contractor shall submit sign design and dimensions for approval by the Contracting Officer.

7. BULLETIN BOARD.

7.1 General. The Contractor shall construct and erect a bulletin board which shall be accessible at all times and shall contain a copy of wage rates, equal opportunity notice and such other items required to be posted. The bulletin board shall be mounted at a highly visible location on the dredge, or erected at the location directed by the Contracting Officer. The bulletin board shall be erected as soon as possible and within 5 days after date of receipt of notice to proceed.

7.2 Construction. The bulletin board shall be weatherproof, approximately 36 inches wide and 30 inches high, with hinged glass door. Bulletin board shall be painted or have approved factory finish.

7.3 Maintenance and Disposal. The Contractor shall maintain the bulletin board in good condition throughout the life of the contract. The bulletin board shall remain the property of the Contractor and upon completion the contract, shall be removed from the site.

8. **HARD HAT SIGN(S).**

The Contractor shall construct and erect hard hat signs mounted at highly visible locations on each dredge and one hard hat sign located at each Government-furnished upland disposal site as applicable and as directed by the Contracting Officer. The hard hat signs shall be constructed in accordance with Figures 2 and 2A included at the end of this section. At the upland disposal sites, the hard hat signs shall be securely bolted to the supports. Supporting post or posts shall be sufficiently rigid to support the sign in an upright position under all anticipated conditions. Where necessary, posts shall be braced. The hard hat signs shall be erected as soon as possible and within 5 days after date of commencement of dredging.

9. **PRE-DREDGING/PRE-CONSTRUCTION CONFERENCE.**

9.1 After award of contract, a pre-dredging/**pre-construction** conference will be held at such time and location as determined by the Contracting Officer for purposes of discussing and developing mutual understanding between the Contracting Officer or his authorized representative and the Contractor's Representatives regarding the terms, conditions, and requirements of the contract. Members of the conference from the Government will include the quality assurance staff, the Contracting Officer or his authorized representative, and construction staff. Members from the Contractor shall include the dredge master, chief hydrographic surveyor, and the quality control staff. The Contractor shall present and deliver for the Contracting Officer's approval his work plans and schedule, safety program, environmental pollution control program, sequence of all phases of the work, and plans for his dredge equipment deployment to minimize navigational hazards and ensure the continuous use of the narrow waterway by navigation during the dredging operations.

9.2 The discussion will include, but will not be limited to, the following:

9.2.1 Contractor supervisory and quality control project staff.

9.2.2 Correspondence between organizations and procedures to be followed.

9.2.3 Safety program.

9.2.4 Environmental pollution control program.

9.2.5 Quality control and hydrographic procedures and requirements.

9.2.6 Project scheduling and payment procedures.

9.2.7 Horizontal and vertical dredging controls.

9.2.8 The data gathering for the DDLS program and the associated requirements.

9.2.9 Sampling, Testing, Analysis Methods for testing dredged material.

9.2.10 Other subjects that may be of interest to the contracting parties.

9.3 Weekly Meetings. Weekly construction/survey/coordination/progress meetings shall be held between the Contractor, Contracting Officer or authorized representative, and Government personnel.

10. PUBLIC UTILITIES AND PRIVATE IMPROVEMENTS.

10.1 General. The Contractor's attention is directed to the possible existence of pipelines or public utilities or private improvements shown or not shown on the drawings which may be buried within the limits of the work or adjacent thereto and the existence of several bridges crossing the river. Bridge horizontal and vertical clearances are shown on the drawings. Care shall be taken to preserve and protect any such improvements from injury or damage during construction operations. Utilities or improvements, whether buried or not, which cannot be determined to exist through visual inspection by the Contractor, if inadvertently damaged by the Contractor's operations, shall be promptly repaired or replaced by the Contractor, and an equitable adjustment in the amount due under the contract will be made as provided in the contract. The Contractor shall assume full responsibility for reimbursing the owners for any damage to their properties, utilities, or improvements, or interference with their services caused through his operations. The Contractor is not relieved from the responsibility set forth in Contract Clause "SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK," except as provided above.

11. LAYOUT OF WORK.

The Contractor shall lay out his work from Government-established monuments and gages as shown on the drawings and shall be responsible for all measurements in connection therewith. The Contractor shall furnish, at his own expense, all templates, platforms, equipment, markers and labor as may be required in laying out any part of the work from the gauges established by the Government. The Contractor will be held responsible for the execution of the work to such lines, grades and gages as may be established or indicated by the Contracting Officer. It shall be the responsibility of the Contractor to maintain and preserve all monuments and other marks

established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through his negligence prior to their authorized removal, they may be replaced by the Contracting Officer at his discretion. The expense of replacement will be deducted from any amounts due, or to become due, the Contractor.

12. SAFETY OF STRUCTURES.

The Contractor shall use reasonable and proper care in the prosecution of the work to assure the stability of piers and other structures lying on or adjacent to the site of work, insofar as they may be jeopardized by the dredging operations and on account of moving or mooring of equipment. The Contractor shall make good all damages resulting from the moving and mooring of his equipment and from dredging operations insofar as such damages may be caused by variations in locations and/or depth of dredging below that ordered by the Contracting Officer.

13. PAYMENT.

No separate payment will be made for the work covered under this section of the specifications, and all costs in connection therewith will be considered a subsidiary obligation of the Contractor.

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SAFETY IS A TEAM EFFORT

SECTION 01305

SUBMITTAL PROCEDURES

1. APPROVED SUBMITTALS.

The approval of submittals by the Contracting Officer shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the CQC requirements of this contract is responsible for the dimensions, details and satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be given consideration unless accompanied by an explanation as to why a substitution is necessary.

2. DISAPPROVED SUBMITTALS.

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies as specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, notice as required under the Contract Clause entitled "Changes" shall be given promptly to the Contracting Officer.

3. WITHHOLDING OF PAYMENT.

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

4. SUBMITTAL REGISTER.

The Contractor shall submit all items listed on the Submittal Register (ENG Form 4288) or specified in the other sections of these specifications. The Contracting Officer may request submittals in addition to those listed when deemed necessary to adequately describe the work covered in the respective section. Units of weights and measures used on all submittals shall be the same used in the contract drawings. Submittals shall be made in the respective number of copies and to the respective addresses set forth below. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each respective transmittal form (ENG Form 4025) shall be stamped, signed, and dated by the CQC representative certifying that the accompanying submittal complies with the contract requirements. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited

to) catalog cuts; diagrams; test reports; samples; certifications; warranties and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby.

5. SCHEDULING.

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 7 calendar days exclusive of mailing time) shall be allowed on the register for review and approval. No delays, damages or time extensions will be allowed for time lost in late submittals.

6. TRANSMITTAL FORM (ENG FORM 4025).

The sample transmittal form (ENG FORM 4025) in the Appendix shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care will be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

7. SUBMITTAL PROCEDURE.

7.1 Procedure. Within seven (7) calendar days after receipt of notice to proceed, the Contractor shall complete and submit to the Contracting Officer, in duplicate, the submittal register (ENG FORM 4288) listing all submittals required under the contract and dates of submittal. The scheduled need dates shall be recorded on the register for each item for control purposes. Scheduling shall be coordinated with the approved progress schedule. The Contractor's quality control representative shall review the register at least every 7 days and take appropriate action to maintain an effective system. Updated or corrected copies of the register shall be submitted in duplicate within three (7) calendar days.

7.2 Deviations. For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG FORM 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

7.3 Submittal format. **Regardless of statements elsewhere in these contract documents, all submittals shall be submitted in hardcopy on paper in addition to any other format specified elsewhere (e.g., electronic format, electronic mail, etc.).**

8. CONTROL OF SUBMITTALS.

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

9. PAYMENT.

No separate or direct payment will be made for the work covered under this section, and all costs in connection therewith will be considered a subsidiary obligation of the Contractor.

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SAFETY IS A TEAM EFFORT

SECTION 01330

CONTRACT DREDGING QUALITY CONTROL AND PROGRESS PAYMENT SURVEYS

1. DESCRIPTION OF WORK: For all work performed under this contract, the government will perform the pre-dredge and post-dredge surveys for final payment. The Contractor shall be responsible to perform all interim, progress payment and quality control surveys. All contract-required surveys shall be performed in accordance with the channel alignment data, angle points describing the channel layout and line files provided to the Contractor by the government. The government provided survey line file shall determine where contract survey lines shall be taken as well as all geospatial reference/control points to be used (e.g. specified tide gauge locations). The government provided survey line file will be a HYPACK For Windows (HFW) .LNW. This file will be provided to the contractor upon written government acceptance of items 1 through 5 of Paragraph 4.3.

Contract-required surveys as used in this section shall be defined as any survey which the contractor is required to perform as part of this contract, including but not limited to quality control, progress payment and final acceptance surveys.

For “multi-year” contracts and/or projects on which separate mobilization/demobilization efforts occur, whether government or contractor caused, all activities in this Section shall be repeated at the start of each new dredging cycle and/or mobilization.

2. GENERAL: The contractor shall provide all resources, including but not limited to a survey vessel and crew(s) necessary to perform all contract-required surveys. The survey vessel/equipment used to begin the contract-required survey operations shall be used for the entire contract period and shall not be changed. Accuracies and other standards are outlined in the hydrographic survey manual EM 1110-2-1003-Jan 01, 2002, Chapter 3. These hydrographic standards as modified by these contract documents shall be followed when performing any contract-required survey. Whenever a conflict arises, the stricter, more difficult requirement shall apply.

The Contractor shall be responsible for providing an independent surveyor to perform its surveys for interim, progress payment and quality control surveys. All contract-required surveys shall be performed by an independent surveyor whose equipment and work force is independent of the Contractor. The independent surveyor shall be required to document and certify in writing that s/he has a valid California professional license to practice surveying or an American Congress on Surveying and Mapping (ACSM) certification as an “Inshore Certified Hydrographic Surveyor” and has actively engaged in hydrographic survey operations during the past 3 years. The name of the surveyor and samples of previous hydrographic survey work shall be submitted to the Contracting Officer for review and acceptance. The contractor shall provide documentation indicating that accuracy standards for electronic horizontal positioning and depth finding equipment are met or exceeded for the surveys to be performed, including a Differential

Global Positioning System (DGPS) capability to include as a minimum, the name, model, and year of manufacture of the electronic equipment, the electronic frequencies of the depth finding equipment and the horizontal positioning equipment, and the manufacturer's stated positioning accuracy and capability of the equipment proposed for usage. In addition, the contractor shall provide information that a safe and suitable vessel is available for the surveying operations.

Quality control surveys shall be performed a minimum of once weekly during dredging operations and shall include contractor tracking and resolution of deficiencies in the work, all in accordance with ER 1180-1-6, Construction Quality Management and to verify that the work is being performed in accordance with ER 1180-1-6.

Reach acceptance surveys shall be performed at the end of each payment reach and shall be accompanied by the contractor's written certification that the work is complete and ready for final acceptance on the certification form included at the end of this Section.

3. HYDROGRAPHIC SURVEYS All contract-required surveys shall be performed in accordance with the following requirements. Failure to perform, process and submit contract-required surveys in accordance with all contract requirements shall result in rejection of the survey data and nonpayment for the contract dredging work performed until said surveys and submittals thereof comply with contract requirements..

3.1 All contract-required surveys shall be performed using the Hypack For Windows (HFW) files provided to the contractor by the government. All geospatial (vertical and horizontal) control shall be as specified in the contract documents. The contractor QC Plan shall affirmatively identify the use of these files and specified control.

Hydrographic survey procedures, including, but not limited to positioning modes, electronic position system calibration, accuracy requirements, depth measurements calibration, and data reduction, adjustment, processing and plotting shall conform at a minimum to those in the Hydrographic Manual, Corps of Engineers Manual Update, Jan 01, 2002, (EM 1110-2-1003) and as specified herein. Where there is a conflict, the more stringent requirements shall apply.

The HFW files provided to the contractor for its mandatory use when performing contract-required surveys will conform to the following requirements. Hydrographic sounding lines shall be taken perpendicular to the channel centerline. Centerline project stationing shall be used at all times throughout the hydrographic survey to label sounding lines. Sounding lines shall be (at a minimum) even 100-foot stations and more frequently at all channel angle points for the length of the survey as defined by the project .LNW line file.

Contract-required survey soundings shall not deviate more than plus or minus 10 feet off station alignment. The minimum survey line length from the toe of the channel to the end of the survey line shall be four times the project design depth in order to have data extend a minimum distance beyond the side slope daylight point, unless obstructed. The

contractor shall conduct additional soundings on the backside of obstructions to complete sounding lines. Obstructions shall be identified (e.g. ships, wrecks, docks). All line data shall intersect project templates. As required to complete lines, soundings shall be taken during high tides. Incomplete lines shall be re-run. The hydrographic survey system shall be capable of performing "field-finish" operations wherein survey data is collected, processed, and edited (cross-sections) in the field. Incomplete and inaccurate data (lines outside survey position limits) shall be resurveyed without delay, preferably on the same survey day. Cross-section data shall be available for immediate review and evaluation by the Contracting Officer Representative upon request.

3.2 All contract-required surveys shall include simultaneous two channel (dual frequency 20-33 KHz, 200-210 KHz) transducer recording shall be required for qualitative (20-33 KHz) and quantitative (200-210 KHz) evaluation of sediment lenses and density differentials.

All data used to determine reach and project acceptance, final quantity and final payment, including but not limited to pre-dredge and post-dredge surveys shall be from the government survey(s) and shall use only 200-210 KHz data. Contractor surveys will not be used for this purpose. The standard Hypack/smart overdepth average end area (AEA) computation shall be used for determining project quantities. It is explicitly recognized that differences may occur between contractor contract-required surveys and government surveys, however the government surveys will be used in all cases except gross error.

3.3 Automatic continuous digital tide gauge recording during all contract-required survey operations shall be required. Tide gauges shall record at a minimum of every five minutes or at an interval that allows no greater than a 0.1-foot change in tide level between measurements, whichever is less. The time and date of all surveys shall be provided on the cross-section plots for correlation with the printed tide record. These plots shall be submitted with the field books. Daily checks of the fixed tide gauge are to be correlated with the automatic system and said checks shall be included in the daily QC reports. The gauge(s) shall be operational during all surveys. The survey system shall have the capability for incorporating the real time tidal records on board the survey vessel if requested by Corps inspectors.

3.4 Squat/settlement curves developed as part of vessel calibration shall be on-board the survey vessel and are to be incorporated into the survey computations software program (HFW).

3.5 Existing fixed navigation markers shall be located by survey as part of the the initial contract QC survey is performed. The marker coordinates shall be annotated for each fixed marker in the HFW.tgt files and submitted with the survey.

3.6 The analog recording of echo soundings shall indicate a calibration check (bar check) of the echo sounding at the beginning and end of each analog paper change (if paper record is used) and at such times as necessary to ensure sounding accuracy. Frequency of calibration shall be specified in Contractor's Survey QC Plan.

3.7 The echo sounder shall have a frequency of 200-210 KHz, with a 3.5 degrees cone measured at the 6db point. The top of the return signal trace shall be the point of interpretation of sounding. Bar checks will be taken at a minimum of five foot intervals. Location/position of bar checks shall be recorded in QC reports. Surveys for contract measurement and acceptance require, as a minimum, twice daily calibrations at the project work site.

3.8 Failure to perform adequate calibrations, including documentation/certification thereof, can lead to rejection of the survey and any payment associated with it.

3.9 The contractor shall use survey methods which conform to the following precisions for control:

(1) Horizontal - Primary control shall be established to third order accuracy (1:5,000 ratio of closing error to length of line).

(2) Vertical - Primary vertical controls will close within 0.05 foot. Mean Lower Low Water (MLLW) datum shall be obtained by applying the adjustment for the area. All soundings shall be referenced to MLLW.

3.10 Minimum performance standards for hydrographic surveys shall be in accordance with EM 1110-2-1003, 1 Jan 02, Chapter 3, Table 3-1, Navigation & Dredging Support Surveys, Bottom Material Classification Soft, as modified following:

Resultant elevation/depth accuracy for acoustical systems at all depths (d) shall be ± 0.5 feet.

3.11 Metadata – The contractor shall provide metadata in accordance with the 1994, the FGDC (Federal Geodetic Data Committee) Geospatial Data Standards for documenting origins and characteristics of geospatial data (EM110-1-2909, 1 Aug 96) addendum 01330-7.

4. COORDINATION, SUBMITTALS AND PROGRESS OF THE WORK

4.1 The Contractor shall coordinate all work with the government. No contract-required surveys shall proceed until written authorization is provided by the government, as described further in this Paragraph 4, below.

4.1 All submittals (hard copy and CD-R format) shall be delivered to:

U. S. Army, Corps of Engineers
San Francisco District
ATTN: Construction Services Branch
Bay Model Building
2100 Bridgeway Avenue
Sausalito, California 94965
Telephone: 415-331-0404

All e-mail format submittals shall be delivered to three (3) each government addresses to be provided.

4.2 A mandatory pre-construction surveying meeting shall be held to review survey control/ equipment/ procedures/ QC program/ safety plan/ dredging control/ calibration/ schedule/vessel reports/ submittals and channel configuration. This meeting shall be held prior to commencement of any contract-required surveying or dredging. This meeting shall be coordinated with the San Francisco District Construction Services Branch in the Sausalito Resident Office (415-331-0404).

4.3 The following contract submittals shall be submitted a minimum of (1) one week prior to the pre-construction survey meeting and shall be discussed at the meeting.

- (1) Survey Schedule/frequency of QC/ progress surveys.

Contractor's schedule for all contract-required surveys. At a minimum, the schedule shall reflect the initial vessel to vessel calibration survey, the pre-dredge quality control survey, the number of typical weekly quality control surveys that will be performed, progress payment surveys and final acceptance surveys.

- (2) Survey Vessel Safety Plan demonstrating full compliance with EM 385-1-1 for floating survey vessels. Completed initial survey vessel checklist and written certification of vessel safety shall be included with this Plan.

- (3) Survey QC Plan

The survey component of the project QC plan shall completely address the quality control of the survey activity and coordination with the dredge plant, including but not limited to accuracy and reliability of the equipment and reliability of the QC plan system. The survey QC Plan shall identify a proposed CQ Manager specifically for survey quality control who shall demonstrate appropriate knowledge and experience in hydrosurveying.

- (4) Equipment Inspection/Vessel/Installation (Contract Survey Vessel Inspection Checklist)

The Contract Survey Vessel Inspection Checklist (included in this section) shall be completed by the contractor and shall describe the survey equipment installed on the vessel, to include technical descriptions/specifications of all installed hardware/software.

- (5) Current surveyor qualifications/license/vessel operator/personnel

Contractor shall identify the vessel and all surveyor(s) and equipment operator(s) to be used on this project. Contractor shall include information identified in

Paragraph 2 of this Section, at a minimum to demonstrate capability and compliance.

4.4 A mandatory contractor survey vessel to government survey vessel on-site calibration check shall be performed. Said calibration check shall be performed only after government acceptance of Paragraph 3.3 Items 1-5 (above). Contractor shall request to perform this check in writing a minimum of three (3) working days prior to proposed date of check. This check shall be satisfactorily completed and accepted by the government in writing prior to any dredging.

This check is to be performed as follows: The vessel to perform contractor's dredging support surveys shall perform surveys on a minimum of 4 government-selected lines prior to performing contract surveys. Data shall be compared with government vessel survey data and evaluated for accuracy, completeness, data anomalies, relative errors, vessel velocities, and trackline errors. A QC report shall document the results of the vessel comparisons and shall be submitted for vessels. The contractor shall provide reports prepared by the survey vessel party chief documenting the results of the calibrations and comparisons of survey data for government review and acceptance.

4.5 Pre-dredge QC survey.

The contractor shall perform a pre-dredge QC survey of the entire dredging contract to include all lines as provided by the government. Said survey shall not begin until written government acceptance of the vessel to vessel calibration (Paragraph 4.4). The government shall be allowed a minimum of one (1) week for review of this submittal. No contract dredging shall be performed until after government written acceptance of pre-dredge QC survey results.

4.6 Dredging QC surveys.

During dredging activity, QC contract-required surveys shall be performed weekly at a minimum. These surveys shall include the areas dredged since the last survey and shall include one line of overlap. Additional QC contract-required surveys may be required by the COR upon notification to the contractor of additional surveys to be performed for quality control/progress.

A weekly dredging progress workplan shall be prepared and submitted by the contractor with the relevant QC contract-required survey submittal. This workplan shall show and describe which areas have been dredged during the previous week and which areas will be dredged for the next week. The workplan shall be updated/submitted as an Autocad document (.DWG) with a project channel contained in the dwg file and areas dredged shown on the plan.

A weekly Quality Control survey meeting between the contractor and the government will be held during contract dredging operations. This meeting will be held after receipt of the weekly QC contract-required survey submittal and weekly dredging progress workplan.

4.7 Progress payment surveys

Any progress payment which includes dredging work shall include with the payment request a progress payment survey submittal. The payment request will not be deemed complete and sufficient until receipt of a complete progress payment survey submittal. The progress payment survey shall include a separate longitudinal profile of the left and right toes, and project centerline for correlation with the cross-line surveys be inclusive of limits of the entire reach designated for the progress payment. The survey shall include all lines on the subject reach, which lines have been dredged to the date of the progress payment request, whether or not those lines include work previously paid. The survey shall be current and performed continuously over consecutive working days. It shall not include survey data from earlier surveys and/or previous pay requests. Composited/selected data sets of survey line files are not acceptable. All progress payment surveys shall reflect complete and sequentially surveyed lines.

In addition to the information provided as part of all contract-required survey submittals, all progress payment survey submittals shall include information identified in Paragraph 4.12.

4.8 Reach acceptance surveys

A reach acceptance survey and submittal shall include all of the work and information included in QC survey and submittals and progress payment survey and submittals. In addition, a reach acceptance survey submittal shall include completion of the Contractor Certification Statement included at the end of this Specification Section.

If the government post-dredge survey finds the reach to be unacceptable, the contractor will be required to complete dredging and repeat this process. Subsequent government surveys will be required. The cost to contractor for these subsequent government surveys will be \$7000.00 per day.

Each successive dredging reach shall be surveyed and accepted/rejected in accordance with this procedure. ~~A project reach payment may be made for up to the 90% level of completed progress. Full payment (100%) for a reach will be made upon final acceptance of the entire project.~~

4.9 During the period of the dredging contract, the contractor shall not de-mobilize from the project until all reaches have been fully accepted at the 100% level of completion. The COR will specify in writing that all work is complete and that the contractor shall de-mobilize from the project site.

4.10 Acceptance reaches as follows:

REACH #1	STA 0+00 to 152+00
REACH #2	STA 152+00 to 504+00

REACH #3 STA 504+00 to 632+00
REACH #4 STA 632+00 to 733+00

All data used to determine reach and project acceptance, final quantity and final payment, including but not limited to pre-dredge and post-dredge surveys shall be from the government survey(s) and shall use only 200-210 KHz data. Contractor surveys will not be used for this purpose. The standard Hypack/smart overdepth average end area (AEA) computation shall be used for determining project quantities.

The government pre-dredge survey to be used for payment purposes will be performed for all reaches at the start of the project. A separate pre-dredge survey will not be performed for each reach individually or at staggered times. The government post-dredge survey for payment purposes will be performed for each reach individually after receipt of the contractor certification that the reach is complete and ready for acceptance.

4.11 Survey Data Identification Procedures and Requirements

All electronic survey data submitted to the Corps shall contain a string of information in the title that clearly identifies the contents of the data. The information is specific for each dredging project and each reach of a dredging contract within the San Francisco District. The identification string consisting is divided into 5 separate fields. The 5 individual data fields shall contain the following information in the specific order as shown by the sample string below:

- | | |
|-----------------------|--|
| 1. Project | SB |
| 2. Surveyor | Contractor (Five (5) string to be defined by the government) |
| 3. Type of Survey | QC (contract-required survey) |
| 4. Julian Date (3)(2) | 3 Characters=Day
2 Characters=Year |
| 5. Reach # | R# |

A sample data string title would consist of the following information for a compressed data set:

RI_contractor_QC_03203 R2.zip

4.12 Survey Submittals

All contract-required surveys shall be submitted to the government. Said submittal shall be submitted to the government within two (2) working days of survey completion, in hard copy, electronic CD-R and email format and shall not be considered until all 3 formats are received. All hard copy information (e.g. photocopies, written reports) shall also submitted as a “.jpg” file.

All survey submittals shall include the following:

1. File identification label per Paragraph 4.11.

2. Survey QC logs prepared daily during the course of the survey activity. This mandatory survey QC log shall report, at a minimum, the personnel, craft, equipment, layout, weather/sea conditions, survey lines accomplished and geospatial controls used and shall include copies of all original field notes. Additional information may be required by the government.

Field notes shall include at a minimum:

(a) level line notes, elevation data, benchmarks, temporary benchmarks and location of all control used by the contractor;

(b) the position and identification of all obstructions preventing the collection of soundings.

3. Survey Vessel Inspection Checklist prepared daily during the course of survey activity and demonstrating full compliance with contract documents, including requirements identified on the Checklist.

4. HFW survey raw and edited data, including completed HFW file legend.

All survey submittals for progress payment or acceptance shall also include:

5. Quantity calculations including tabulation of quantities.

5. PAYMENTS No separate payment will be made for the work specified under this section. Payment for performing the interim surveys for progress payment, quality control surveys (QC), including furnishing data, quantity computations and drawings, will be included in the applicable contract unit prices for dredging.

References

- a. Contract Survey Vessel/Safety Inspection Checklist
- b. EM 1110-1-2909, Aug 96 Geospatial Data
- c. General Survey Criteria EM 1110-2-1003, Jan 01, 2002
- d. Contract Survey Vessel Inspection Checklist (Technical)

Contractor Certification Statement

CERTIFICATION STATEMENT ACCEPTANCE SECTION/SURVEY:

REFERENCED SOURCE DOCUMENT:

EM 1110-2-1003, 1 JAN 02, P.14-13

I have fully observed the performance of the subject survey and have determined, based on my review of the referenced source document record, that the data contains no evidence of collusion, fraud, or obvious error. The recorded data, including calibration corrections thereto, have been obtained in accordance with the systematic/procedural methods and techniques Described in the contract documents, that all known and unknown systematic and random errors have been minimized consistent with: (1) The relative precision errors of the equipment utilized; and (2) Absolute accuracies expected (or likely) given current (state-of-the-art) horizontal and vertical measurement limitations associated with offshore survey system, procedures, and related variables; and, as such, the observed/recorded data are fully and finally acceptable for determining and measuring contract performance and payment. I further certify that Reach ____ is complete and ready for Final Acceptance Survey by the government.

AUTHORIZED REPRESENTATIVE:

/S/ _____
TITLE: _____
DATE: _____

DIVISION 2 - SITE WORK

SECTION 02480

DREDGING

1. WORK COVERED BY CONTRACT PRICES.

The contract price per cubic yard for maintenance dredging shall include the cost of removal and disposal of all materials as specified herein or indicated on the drawings.

2. MOBILIZATION AND DEMOBILIZATION.

2.1 Mobilization shall consist of all work required in preparing the Contractor's dredging plant/equipment, moving plant, equipment, labor, supplies and incidentals to the job site, preparation for dredging, and maintaining plant and equipment in working condition at the site during the dredging period.

2.2 The Contractor's plant and equipment to be used in performing the work shall be of sufficient size and efficiency to meet the job requirements and will be subject to approval by the Contracting Officer.

2.3 Demobilization shall consist of all work required to prepare plant and equipment for return trip and removing all plant, equipment, labor and unused supplies and incidentals from the job site at the completion of the contract work, including cleaning up any land based staging site used in the prosecution of the work.

2.4 The Contractor shall agree that the construction plant, equipment, and material will not be removed from the site without the written permission of the Contracting Officer; and agree that structures and facilities prepared or erected for the prosecution of the contract work will be maintained and not dismantled prior to the completion and acceptance of the entire work, without the written permission of the Contracting Officer.

3. ESTIMATED QUANTITIES.

The estimated quantities shown in the bidding schedule for dredging includes material to be removed to the maximum limit of overdepth dredging as follows:

3.1 Standard Dredging. The total estimated quantities of material to be removed in the required dredging prism (exclusive of allowable overdepth), as shown in the bidding schedule is as follows:

<u>Bid Items</u>	<u>Cubic Yards</u>
0002A & 0002B	63,000 125,000
1002A & 1002B	125,000

These quantities will be used in determining adjustments, if any, under the terms of Special Clause "VARIATIONS IN ESTIMATED QUANTITIES - DREDGING".

3.2 Overdepth Dredging. Overdepth dredging will be allowed to the limits specified in paragraph "OVERDEPTH AND EXCESSIVE DREDGING". The maximum amounts of overdepth dredging, as shown in the bidding schedule is as follows:

<u>Bid Items</u>	<u>Cubic Yards</u>
0002C	20,000 40,000
1002C	40,000

This quantity will be used in determining adjustments, if any, under the terms of Special Clause "VARIATIONS IN ESTIMATED QUANTITIES - DREDGING".

4. SITE CONDITIONS.

The material to be removed to restore the depth within the limits shown on the drawings is composed of silty clays and clayey silts are generally soft to very soft and the silty sands, sands, and sandy silts are generally loose to very loose has accumulated since the channel was last dredged to that depth. The material characteristics specified is for information only and in accordance with Contract Clause "SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (FAR 52.236-0003)" the Contractor is expected to examine the site of the work. The records of previous maintenance dredging are available by request at the office of the District Commander, 333 Market Street, San Francisco, CA 94105.

5. NAVIGATIONAL HAZARDS.

Prior to commencement of work, the Contractor shall submit a proposal for keeping the channel open for passage of vessels during dredging, and a drawing of a proposed pipeline anchoring plan to the Contracting Officer for approval. Dredging pipelines and other miscellaneous operational accessories used in dredging shall be properly anchored and maintained by the Contractor. Ingress and egress in the channel shall not be blocked at any time during dredging. Any submerged pipeline shall be marked with a signs and lights at sections which are submerged sufficiently for vessels to cross. The Contractor's dredge shall be equipped for bridge to bridge communication with other

vessels and the Contractor shall monitor prescribed channels in compliance with Coast Guard regulations.

6. DREDGING.

6.1 General. Attention is directed to Paragraph "ORDER OF WORK" in Section "SUPPLEMENTARY CONDITIONS", wherein commencement of mobilization and dredging is specified. Unless otherwise authorized, all dredging shall be performed in the presence of the Contracting Officer.

6.2 Dredging Plan of Operation. Prior to any dredging work, the Contractor shall submit a dredging plan for review and comment. Dredging shall not commence until all comments have been answered to the satisfaction of the Contracting Officer. The plan shall show barge anchoring locations; hydraulic pipelines; pipe anchoring locations; hopper dredging lanes; description of hopper overflow operations; instrumentation used; coordinates and land elevations of all control points for electronic positioning system and MLLW determination; estimated daily dredge advances; quality control survey procedures; anticipated problem areas of project involving poor access due to boat traffic congestion or boat docking; and procedures to assure that dredging will proceed within the contract template and performed in the most economical manner. The plan shall be updated on a weekly basis to allow notification to marinas in the project vicinity and boat owners of the dredge progress.

6.3 Method of Slurry (Pumping). During or after the dredging operations and prior to departing the dredge site, the dredged material shall be processed through a centrifugal pump equal to a hydraulic dredge pump or hopper dredge pump, adding water as needed.

6.3.1 Alternate Slurrying Method. In lieu of pumping as specified above, the Contractor may slurry dredged material at the dredge site by passing the material through a grid with openings of not more than 12 inches in any dimension. The Contractor may propose another method which will similarly break up the dredged material which will be subject to the approval of the Contracting Officer. For the grid system or alternate method, the Contractor shall submit his plan for slurrying and disposal, including but not limited to procedures and equipment used to generate slurry, quality control organization, testing procedures, and test reporting procedures at least ten (10) days prior to dredging.

6.4 Overflow, Spillage and Leakage.

6.4.1 Overflow from Barges and Scows. No overflow of dredged material or water will be allowed from the receiving barges or dump scows during dredging operations, except as follows: overflow will be allowed only under the following combined conditions: (1) the material is dredged with a hopper dredge, or hydraulic dredge (cutter-head, suction, or vortex type); and (2) the material is suitable for open water disposal, as approved by the Contracting Officer or COR. Where overflow is allowed, overflow time shall be limited to 15 minutes and the discharge shall be below the water surface.

6.4.2 Overflow from Hopper Dredges. Overflow during dredging will be allowed. During hopper dredging, the time of allowable overflow of dredged material and water from hopper bins shall be limited to the most economical load based on hopper load charts for hopper dredges as approved, but in no case longer than 15 minutes. All overflow shall be discharged below the water surface.

6.4.3 Spillage and Leakage. Dredged material and water shall not be permitted to spill over or leak out of barges, hopper bins or dump scows while in transit to the disposal site. Barges or dump scows which exhibit ~~an average a~~ loss in vessel draft in excess of 1 foot between the loaded barge draft recorded at the dredging site and the predisposal draft recorded at the ocean disposal site, will be taken out of service for this project until repaired. The Contractor shall record draft of hull for each scow load as specified under quality control. If applicable, no loss in draft or volume will be permitted from containers transporting dredged materials for land disposal. The Contractor shall paint visible draft levels at 1 foot intervals and at the 80 percent load line on the inside of each scow and hopper bin.

6.4.4 Monitoring of overflow, spillage and leakage shall be as specified in Section 01405, "QUALITY CONTROL".

6.4.5 Contractor shall employ a Third-party Monitoring Subcontractor to furnish a USACE approved electronic monitoring equipment and processing/maintenance services in accordance with Appendix 10 Dredge Monitoring System Operational Requirements-(DDLs). Scow draft and bin levels for each disposal event shall be made available to the USACE via the vessel monitoring web site for verification of leakage criteria. If applicable, no loss in draft or volume shall be permitted from containers transporting dredged material for land disposal.

6.5 Horizontal Position Monitoring of Dredge. Contractor shall employ differential GPS positioning systems aboard the dredge plant and disposal barges. The dredge shall employ a helmsman display and scows shall require positioning per Appendix 10. This Global Positioning System (GPS) shall be activated during dredging operations. This GPS shall be established, operated and maintained by the Contractor during the period of the contract when dredging work is actively underway. The GPS using range-range methods shall display and record the vessel's location continuously during dredging operations. A continuous graphic print-out plotter and/or graphic monitor shall be on any dredge utilizing a range-range positioning system and a complete copy record of the position data (dredge track history) including date, time, Lambert coordinates (Zone III) and Root Mean Square (quality of position closure), and such record shall be submitted to the Contracting Officer as part of the daily Quality Control Report. The Contracting Officer, and/or his designated representative, shall have access to the monitoring equipment in order to observe its operation during the dredging work. Hydraulic cutter head dredges shall use a gyro-compass or other approved equipment to determine cutter head location. Magnetic compass will not be acceptable. Laser alignment procedures utilized with range-azimuth instrumentation is acceptable for hydraulic cutter head or clamshell dredge positioning. The Contractor shall provide all laser instrument locations as well as range-azimuth instrument control points to the Government during the pre-dredge conference.

6.5.1 GPS System Configuration. The GPS system shall be similar or equal in design, performance, accuracy, operating characteristics, and frequency to those identified in the following technical reference, which is available for purchase at the listed source, or which may be reviewed at the Construction Services Branch, Bay Model Building, 2100 Bridgeway Avenue, Sausalito, California 94965, Telephone: 415-331-0404.

“Hydrographic Surveying”
Department of the Army,
Engineering Manual No. 1110-2-1003, 01 January 2002
USACE Publications Depot
2803 52nd Avenue
Hyattsville, MD 20781-1102

6.5.2 GPS Shore-Based Control. The Contractor shall be responsible for establishing the horizontal control to locate active and/or passive shore-based GPS transmitter/ receiver devices. All control shall meet Third Order, Class I, accuracy standards as defined (and referenced) under chapter 2 of the Army Corps of Engineers manual "Hydrographic Surveying". The Contractor shall obtain all right-of-entry permits and/or leases as required to operate and maintain shore-based electronic equipment on public/private property at no additional cost to the Government.

6.5.3 GPS Calibration. GPS calibration techniques shall conform to standard hydrographic surveying practice consistent with minimization of systematic errors inherent to and consistent with the selected GPS system as specified under Chapter 6 of the Army Corps of Engineers manual "Hydrographic Surveying" (EM 110-2-1003). The Contractor shall be responsible for accurate and reliable GPS calibration for the duration of this contract, and shall document calibration records as part of the daily Quality Control Report.

6.5.4 Range-azimuth GPS calibration techniques shall be calibrated strictly in accordance with the standard independent techniques identified in the Army Corps of Engineers manual "Hydrographic Surveying" (EM 110-2-1003).

6.5.5 Range-range GPS calibration techniques shall be subject to the Contracting Officer's approval to ensure consistency with standard offshore hydrographic surveying procedures. Any degradation in positional accuracy during the course of this contract shall result in suspension of dredging operations, at no additional cost in time or money to the Government until the GPS control is returned to its normal operating levels. Monitoring the Root Mean Square (RMS) of the lines-of-position (LOP's) will determine when calibration may be necessary. RMS positioning shall be maintained within three (3) meter accuracy. If accuracy falls below 3 meters, a time period of 36 hours or as approved will be allowed to make corrections. Three or more LOP's shall be employed to internally determine the relative accuracy (fix quality) of the dredge vessel's location by analyzing the residual errors resulting from the weighted intersection of three LOP's, thus minimizing the need for periodic absolute system calibrations using independent control techniques. In no case shall the

generated LOP's used for the final vessel location computation intersect at less than 40 degrees and not more than 120 degrees at the dredging location.

6.5.6 GPS Breakdown. For range-range systems, the Contractor shall have a backup of at least one additional shore control transponder device which can be used as a fourth shore station. In the event that the hydrographic survey vessel is not utilized to provide the same type of electronic backup capability for the positional monitoring system, then the Contractor shall have on hand at least one additional line printer and/or plotter, offshore guidance control, power supply, and spare parts kit for the receiver, etc., in the event of primary equipment failure. In the event that both the primary and backup systems are rendered inoperative, the Contractor shall make provisions within 36 hours to be operational. Dredging shall not be allowed during downtime period and no additional cost in time or money to the Government will be allowed. In the event of a failure in either the shore-based or ship-based electronic equipment, the Contracting Officer shall be immediately notified of the time of failure and time of repair. For all other GPS systems, the Contractor shall provide a written plan of action to include redundancy in system equipment and work methods to be used to maintain integrity of the dredging work.

6.6 Tidal Control During Dredging. To establish dredging depth to the MLLW datum, the Contractor shall install an automatic recording tide gage with water level sensor placed at the closest Government-furnished tide gage site to each reach of the dredging work as shown on the contract drawings, or as otherwise approved. The tide gage shall provide a continuous recording of tidal change for every 5-minute interval or each 0.1 foot change, whichever occurs first. Tidal changes shall be recorded in MLLW datum, with these changes visually provided to the dredge operator at all times during the dredging process to allow proper adjustment of dredge depth. A printed and digital record of the tidal changes shall become part of and submitted with the Contractor's daily quality control report.

6.7 Inherent Delays. The Contractor shall anticipate inherent delays while dredging around obstructions such as cable, pieces of metal, chains, etc., that may foul the cutter head or clamshell and require removal. The bid prices shall include allowances for such inherent delays.

6.8 Survey of Barge Filling Area. In the event the Contractor chooses to fill a receiving barge or dump scow, the receiving vessel shall be located in an approved anchor site. The Contractor shall be required to perform both a predredge and a post survey of the anchor site by means of an independent surveyor and the Contractor shall be required to remove any shoals attributed to his operation at no additional cost to the Government. Surveys shall be in compliance with Section 01330 "CONTRACT DREDGING QUALITY AND PROGRESS PAYMENT SURVEYS".

6.9 Survey of Barge Filling Areas Located Outside of the Project Limit. If the receiving barge or dump scow is located outside of the dredging limits during dredging operations, the Contractor shall perform pre and post condition surveys over the area within a 100' radius from the barge or scow, excluding any portion of that area within the dredging limits. The Contractor shall furnish computations based on the surveys to determine change in volume of bottom material in cubic yards. Drawings shall

be prepared at a scale of 1"=200'. Soundings shall be plotted with proper orientation/reference to an "X"- "Y" grid system, precision to the nearest one-tenth of a foot, and at intervals not greater than 10 feet. The interval between sections shall not be greater than 30 feet. Depths depicted shall be based upon Mean Lower Low Water Datum at the locality. Drawing sheets shall have appropriate titles, notes, tidal reference data, control survey dates, and other standard drafting details. The drawing requirements may be substituted with CAD drawings and/or HYPACK surveys subject to the Contracting Officer's approval.

6.10 Horizontal Position Monitoring of Dredge. The Global Positioning System (GPS) utilizing the Coast Guard Point Blunt D-Beacon shall be used or other method subject to approval of the Contracting Officer.

6.11 Debris. If debris is encountered within the dredging prism during the dredging process, it shall be removed and placed in a separate barge or other conveyance and disposed of as specified in subparagraph "Disposal of Debris".

6.12 Cooperation with Others. The Contractor shall schedule and perform his work in such a manner as to cause the least amount of conflict to the public and to facilitate the smooth flow of traffic in adjacent waters, and within the project area. The Contractor shall coordinate his work with other contractors, if any, in conjunction with the Contracting Officer to avoid conflicts, at no additional cost to the Government.

6.13 Filling Department of Water Resources (DWR) Barges with Dredged Material (Option Item). If the Government exercises this option, the Contractor shall dredge and fill DWR barges with 1,000 cubic yards of unspecified dredged material. DWR will supply these barges and will be responsible for its transportation to and from the dredge site. This dredged material does not require sampling and testing.

7. DISPOSAL OF DREDGED MATERIAL.

Base Year: The intent is to dispose of the maximum amount of material possible to Sherman Island, provided that the material satisfies the Waste Discharge Requirement per Paragraph 7.1 below, and, if material cannot be disposed of at Sherman Island, material is to be disposed of at SF-16. It is explicitly recognized that the testing required in Paragraph 7.1 must be done during the loading of each scow and, if the material does not meet the requirements for disposal at Sherman Island, it may need to be reloaded into a different type of floating plant for disposal at SF-16, which reloading would be at the discretion of the Contractor based on its floating plant and construction methods. Option Year: In the option year, material may be disposed of at Winter Island or SF-16, as directed by the Contracting Officer."

7.1 Dredged Material Sampling and Testing (Base Year Schedule Only). Because of the requirement in the Waste Discharge Requirement, Order No. 5-01-206, in paragraph C. 10, Appendix

15-14 that the electrical conductivity (EC) of the pore water of dredged material placed at the DMR site on Sherman Island shall not exceed 15,000 micromhos/cm (or 15 mhos/cm or 15 Siemen [S]), the Contractor shall dispose of dredged material exceeding the 15 S standard to the open water disposal area, SF-16. The Contracting Officer shall immediately be notified on the spot of the test results to direct the Contractor to the correct disposal site location.

The following paragraph is an extract from Order No. 5-01-206, Appendix 15-22 which details the sampling, testing and reporting requirements that the Contractor must perform on every barge load of dredged material prior to disposal to determine the disposal location for that barge load. For each barge load, the Contractor shall log the identification of the barge, load number, dredged material quantity, disposal site location, times and dates of barge disposal cycle on an approved form.

The Contractor may test the material at anytime during the loading of each scow, but must complete the sampling, testing, and analysis prior to completion of the scow loading. No standby time or cost shall be compensated for due to delays in the testing. **No cost or standby time shall be compensated for due to results of tests requiring disposal at SF-16.”**

In the case that the conductivity testing of 30 ea consecutive scow loads show readings over 15,000 micromhos/cm the Contractor shall ~~shall~~ **may** determine all further conductivity sampling/testing should be suspended and **may** direct the Contractor to dispose of all future scow loads at SF 16 aquatic disposal site

7.1.1 DREDGE MATERIAL MONITORING

The Discharger shall keep a field log to record each barge of dredge material delivered to the DMR site on Sherman Island. The log shall include the date and time of delivery, and approximate volume of material.

For each barge load, one composite sample shall be taken that is representative of the material being unloaded. The composite sample shall be analyzed for the following:

- Percent moisture
- Pore water shall be extracted using a vacuum filtration and the undiluted pore water shall be analyzed for electrical conductivity (EC)

At least one dredge material composite sample per day shall be taken as a duplicate for the barge sample and analyzed for the following:

- Pore water shall be extracted using vacuum filtration and the undiluted pore water shall be analyzed for the following:
 - Electrical conductivity
 - Total Dissolved solids
 - Chloride
 - Bromide

At the end of the dredge material placement, the Discharger shall provide a report that lists all of the barge deliveries, dates and times, quantities and analytical results. The dredge material summary report shall be delivered to Regional Board staff no more than 15 days after the last barge delivery.

7.2 Government-Furnished Open Water Disposal Areas (SF-16). Dredged material designated for open water disposal shall be transported by hopper dredge, barge, or pipeline and deposited by open water dumping or pipeline discharge at the Government-furnished open water disposal area indicated on the drawings. With the exception of pipeline discharge, disposal shall be performed while the discharge vessel is moving, and disposal shall be uniform over the disposal area. Disposal operations shall be performed as directed and unless otherwise authorized (by verbal communication or in writing) shall be in the presence of the Contracting Officer. No debris or material other than natural mud, sand, or silt shall be deposited in the Government-furnished open water disposal areas.

7.2.1 Electronic Positioning System (EPS) and methods used for the dredge, as specified under Paragraph "DREDGING", shall also be used to display and record the disposal vessel's location at 1-minute time intervals in the vicinity of the disposal site. Enroute to the disposal area, the EPS shall be activated within 1 nautical mile (NM) of the disposal area and not be deactivated until 1 NM from the perimeter of the disposal area on the return trip. Positional data shall be annotated for the time actual dumping is in progress. The EPS data shall be received on board the actual disposing platform/vessel. Positional data received on board a towing or other vessel adjacent to the other vessel will be allowable provided that (1) the eccentric distance does not exceed 100 feet and (2) the eccentric distance and bearings are relatively consistent/constant on successive disposal operations. In no case will gyro-radar distance/bearing estimations be acceptable for eccentric measurements. In such cases, an electronic data transmitter/telemetry system shall be developed to link the towing or other vessel with the disposal platform/vessel. Eccentric coordinates, if any, shall be clearly identified and computed on the copy of the positional record specified below. A hard copy record of the positional data, correlated with time and annotated with date shall be submitted to the Contracting Officer as part of the daily Quality Control Report and every Monday before noon on a CD. The Contractor shall also furnish a copy of the computer program for reading the CD's. The Contracting Officer shall have access to the monitoring equipment in order to observe its operation during disposal operations.

7.2.2 Disposal Vessel Location (for Government-Furnished Open Water Disposal Area SF-16). Methods used for the dredge positioning as specified under Paragraph "Dredging," shall also be used to display and record the disposal vessel's location or discharge pipeline at 1 minute time intervals throughout the loading, transport, and disposal cycle of each disposal vessel or pipeline discharge. The DDLs data shall be received on board the disposal vessel. Positional data shall be annotated for the time actual dumping is in progress. A copy record of the DDLs positional data, correlated with time and annotated with date shall be submitted to the Contracting Officer as part of the daily Quality Control Report. The Contracting Officer shall have access to the monitoring equipment in order to observe its operation during disposal operations.

7.2.3 Disposal of Debris. Debris, man-made objects, timber, chains, anchors, flotsam,

miscellaneous metal objects and other foreign material removed during dredging shall not be disposed of in the Government-furnished disposal areas. Such material shall be disposed of at a land site at the responsibility of the Contractor.

7.2.4 Notification. When utilizing the Government-furnished open water disposal areas, the Contractor shall notify the U.S. Coast Guard via radio (S.F. Bay Traffic on Channel 14) five minutes in advance of actual departure from the dredge site and immediately prior to actual disposal operations. The Contractor shall follow established guidelines by the U.S. Coast Guard and maintain a log of disposal movements using sample form in Appendix 9-1. The Contractor shall follow established guidelines by the U.S. Coast Guard and maintain a log of disposal movements using the form in Appendix 9-1. By Monday morning of each week, the Contractor shall submit the prior week's electronic disposal site logs on a CD to the: U.S. Army Corps of Engineers, Operations and Readiness Division, 333 Market Street, Rm 809, San Francisco, CA 94105, ATTN: David Dwinell. Mr. Dwinell shall be contacted at (415) 977-8471 for coordination and specific requirements. The reporting day begins at 0000 hours and ends at 2400 hours. **All information submitted to David Dwinell shall also be submitted at the same time to the Project Engineer in writing (hardcopy) and in electronic format. Submittal shall include written analysis of the data in the report including deficiency tracking information per Section 01405 QUALITY CONTROL.**

7.2.5 Misplaced Material. Any material that is intentionally or unintentionally deposited elsewhere than in places designated or approved by the Contracting Officer will not be paid for and the Contractor may be required to remove such misplaced material and deposit it where directed at his expense.

7.3 Government-Furnished Upland Disposal Areas (Sherman Island, Winter Island). Dredged material designated for upland disposal shall be transported by hopper dredge or barge and deposited at the Government-furnished upland disposal area indicated on the drawings. Disposal shall be uniform over the disposal area. Each load disposal shall be identified on the daily Quality Control Report for that day. Disposal operations shall be performed as directed and unless otherwise authorized (by verbal communication or in writing) shall be in the presence of the Contracting Officer. No debris or material other than natural mud, sand or silt shall be deposited in the Government-furnished upland disposal area. The Contractor shall restrict adding water for pump-off of dredged material to only that required for material to flow. The dredged material to be disposed of at either Sherman Island or Winter Island shall be off-loaded by using a mechanical clamshell only.

7.3.1 Disposal of Debris. Debris, trash, man-made objects, timber, chains, anchors, flotsam, miscellaneous metal objects and other foreign material removed during dredging shall not be disposed of in the Government-furnished upland disposal area. Such material shall be disposed of on land at the responsibility of the Contractor.

7.3.2 Misplaced Material. Any material that is intentionally or unintentionally deposited elsewhere than in places designated or approved by the Contracting Officer will not be paid for and the

Contractor may be required to remove such misplaced material and deposit it where directed at his expense.

8. LOAD MEASUREMENTS (BASE YEAR SCHEDULE ONLY).

8.1 General. Load measurements will be performed by or under the direct supervision of the Contracting Officer. Measurements will be accomplished by loadometers in the pressure tubes and acoustic sensors over the barge bins. In the event the sensors and/or loadometers fail, the measurements will be accomplished by manually sounding the barge bins. Barge bin soundings will be taken at the locations shown in Appendix 6, or as otherwise approved. The procedures to be used in the load measuring process will be established by the Government prior to commencement of work and will be used as an interim basis for payment until such time as the failed equipment is repaired and placed back into service.

8.2 Acoustic Sensors. The Contractor shall install 4 acoustic sensors (with coaxial cabling and junction box for connection to his computer) over the each barge bin and keep a minimum of 2 additional sensors on board as spares. The sensors shall measure the level of material in the barge bin. The installation locations, number of sensors, and the installation methods shall be submitted in writing to the Contracting Officer for approval prior to installation.

8.2.1 In-Situ Density. The barge bin quantity for payment shall be determined by the data gained from the ship loadometers (pressure transducers) in the pressure tubes and the acoustic sensors mounted over the barge bin. An in-situ density of **(TBD)** grams/cubic centimeter shall be used in the calculations to determine the volume of material removed in-situ for payment purposes. The in-situ density test shall be performed by the Contractor. Testing method shall be approved by the Contracting Officer. After the test has been performed and prior to start of dredging, the Contractor and the Contractor Officer shall agree on an in-situ value to be used for volume calculations. An approved load form and methods shall be used to determine volumes. See Appendix 16 for sample log, calculations, and load measurements.

8.2.2 Calibration. Prior to commencement of dredging, the acoustic sensors shall be calibrated by the Contractor according to the manufacturer's instructions and in the presence of the Contracting Officer. The system shall be tested by filling the barges with water for up to 5 times to test the accuracy of the system prior to dredging. At the discretion of the Contracting Officer, the Contractor shall sound the barges to verify sensor calibration. A sea water density of **(TBD)** grams/cubic centimeter shall be used in the aforementioned tests. The sea water density test shall be performed by the Contractor. Testing method shall be approved by the Contracting Officer. After the test has been performed and prior to start of dredging, the Contractor and the Contractor Officer shall agree on a sea water density value to be used for calibration.

8.2.3 Ullage Chart. The Contractor shall provide to the Government the ullage charts and curves of form (load-displacement tables) of the barge bins within 3 calendar days after award of contract. The ullage charts and curves of form shall be prepared and certified as accurate by a licensed

marine surveyor or licensed marine architect independent of the Contractor. The Contractor shall also furnish drawings of the dredge (vertical cross-section, elevation and plan) within 3 calendar days after award of contract.

8.2.4 Equipment Breakdown. The Contractor shall immediately notify the Contracting Officer of any equipment breakdown. In the event any of the sensors or Contractor's equipment become inoperable to the point that the necessary data is not being recorded, the Contractor may use manual bin soundings for payment for a period not to exceed 72 hours. Thereafter, the Contractor shall cease all dredging operations until the equipment is repaired and re-calibrated to the satisfaction of the Contracting Officer. The time lost and cost of repairs shall be the responsibility of the Contractor.

9. DDLS BACKUP SYSTEM.

Any failure of the DDLS system, components and sensors shall be repaired within 48 hours of the failure in accordance with Appendix 10, subparagraph "Sensor Performance Requirements". During the 48 hour failure period, the Contractor shall continue dredging and disposal operations utilizing his DDLS backup system. The DDLS backup system must be approved by the Contracting Officer and shall be in place and operational prior to dredging and disposal operations.

10. OVERDEPTH AND EXCESSIVE DREDGING.

10.1 Overdepth. The one (1) foot allowable overdepth shown on the drawings is being allowed only to assure removal of a sufficient amount of material to reach required advanced maintenance depth and width. No payment will be made for materials removed from beyond the neat line template payline shown on the drawings. Materials sloughing into the payment area from outside the neat line side slopes shall be removed at no additional cost to the Government. Required advanced maintenance and overdepth dredging will not be allowed where the channel bottom is already at or below project depth.

10.2 Excessive Dredging. Dredging shall not be performed below the allowable overdepth. The Contractor may be subject to sanctions by Federal, State and local agencies for excessive dredging. **Any dredging below allowable overdepth shall be identified immediately by the Contractor as a deficiency and tracked and corrected in accordance with Section 01405.**

11. REPORTING REQUIREMENTS.

11.1 General. The Contractor shall be required to prepare and submit hard copy, and electronic daily reports of operations on quality control forms as directed and/or accepted by Contracting Officer. At project completion, the Contractor shall submit a CD(s) which shall contain all the electronic daily reports to the Contracting Officer. Sample forms are shown in the Appendixes at the end of this section. The daily reports may be supplemented with HFW (Hypack for Windows), hydrographic survey cross-sections which document dredging operations and interim progress for all

shifts in a 24-hour period. Further instructions on the preparation of the reports will be furnished at the preconstruction conference. **All information submitted electronically shall also be submitted concurrently in hard copy with applicable analysis and shall not be considered a complete submittal until both formats are received**

11.2 DDLS Records. Electronic copies of the DDLS positional data shall be submitted to the Corps on CD-ROMs. Positional data shall include records of dredge equipment and all disposal vessels utilized for this contract. The Contractor shall furnish the CD-ROMs, and a copy of the computer program to include setup, configuration and parameter files hardlock (if required) to playback/print all contract DDLS electronic data to: Chief, Construction Services Branch, 2100 Bridgeway Boulevard, Sausalito, California 94965.

12. PREDREDGE AND POSTDREDGE (FINAL) SURVEYS.

12.1 The Government will perform the predredge survey after award of contract and prior to commencement of dredging. The Government will perform only one predredge survey for the entire project at the start of the project and this predredge survey will be used for final payment and acceptance for all reaches. For each reach postdredge survey, the Contractor shall notify the Contracting Officer in accordance with Section 01330 and 01405. Upon receipt of required documentation, the Government will perform the final survey after completion of the acceptance reach at no cost to the Contractor. All reaches found to be in compliance with the contract requirements will be accepted finally and be measured for payment as stated in Paragraph "MEASUREMENT AND PAYMENT", subparagraph "Measurement for Payment" hereinbelow and as stated in Section 01330 and 01405. If the Government is unable to perform the final survey(s) due to the failure of the Contractor to complete the work in accordance with his prior notification, the Contractor shall be responsible for any survey plant and labor standby costs at \$7,000.00 per day and an adjustment will be made to the contract price therefor. Preliminary data from the final Government survey will be available within five (5) working days. If the preliminary survey data indicates that the project is not to the depth required in some or all of the reaches or the completed work, then the Contractor shall resume dredging immediately and in no event more than (5) calendar days after completion of the field survey work to complete the work down to project depth. In no case with the Government be responsible for any delay associated with Government completion of, or review of data or transmittal of data to the Contractor for the postdredge survey. The Contractor is solely responsible to ensure the work is satisfactorily completed within the contract duration. When the acceptance reach or completed work is found to be in satisfactory condition, it will be accepted. The Government will perform only one post-dredge survey per reach or completed work at no cost to the Contractor. Any additional post-dredge surveys or sounding operations performed by the Government due to the Contractor not reaching project depth in a reach or completed work shall be charged to the Contractor at the rate of \$7,000.00 per day for each day in which the Government plant is engaged in sounding and/or is enroute to or from the site, or held at or near the said site, for such operations. The Contractor will not be allowed any additional compensation for work under this paragraph.

12.2 Acceptance Reaches. The acceptance reaches are defined as follows:

Reach 1: Sta. 0+00 to 152+00

Reach 2: Sta. 152+00 to 504+00

Reach 3: Sta. 504+00 to 632+00

Reach 4: Sta. 632+00 to 733+00

Measurement and payment will be made in accordance with paragraph "MEASUREMENT AND PAYMENT" hereinbelow."

13. MEASUREMENT AND PAYMENT.

13.1 Mobilization and Demobilization. Payment for mobilization and demobilization will be made at the applicable contract lump sum prices for "Mobilization and Demobilization" in the schedule(s) under which contract award is made, and in accordance with Special Clause "PAYMENT FOR MOBILIZATION AND DEMOBILIZATION". These prices and payments shall be full compensation for moving all plant, labor, materials and equipment necessary to perform the dredging, preparing plant and equipment ready for work, and removing same from the jobsite upon completion of the contract work.

13.2 Dredging.

13.2.1 Measurement for Progress Payments and DWR Option Item (Base Year Schedule Only). Barge bin measure will be the basis of measurement for interim quantity measurements for progress payments and DWR Option Item. Measurements will be made as determined in paragraph "LOAD MEASUREMENTS" to determine total quantities dredged within the individual project acceptance reaches, subject to deductions for material removed outside the dimensions of the project. Deductions for material removed outside project limits, as shown on the drawings, will be based on percent of load dredged outside of the specified limits as determined by the Contractor's Quality Control Representative and approved by the Contracting Officer. As part of the quality control program, the Contractor will be required to analyze the quantities determined from his computer output of the on-board sensors with the Government's representative on a daily basis and thereby determine the pay quantities removed from within the project limits shown on the predredge survey drawings. These pay quantity determinations, together with amounts deducted as outside the project limits, must be approved by the on-board Government Representative on a load-by-load basis. A daily record of the quantity determination, as shown on the Government Representative's daily report form and an approved load form, will be signed by both the Contractor's Quality Control Representative and the on-board Government Representative. Those records will be reviewed and checked by the Contracting Officer for verification of actual pay quantities. The values arrived at by the Contracting Officer through the review and checking process will be used for actual pay purposes. **Payment quantities for Base Year Schedule only shall be**

per Paragraph 13.2.1 of this Section rather than per Section 01330, unless and until the Contracting Officer directs the Contractor to dispose of all future scow loads at the SF-16 aquatic disposal site, per Paragraph 7.1, at which time payment quantities will be per Section 01330. If the Contracting Officer directs all future scow loads to SF-16, the quantity measurement for payment for each individual project acceptance reach shall be determined by electronic hydrographic soundings minus any previous quantities dredged, measured and paid for by bin measure from that reach.

13.2.2 Measurement for Progress Payments (Option Year Schedules) will be based on approximate quantities determined by electronic hydrographic soundings as specified in Section 01330 "CONTRACT DREDGING QUALITY CONTROL AND PROGRESS PAYMENT SURVEYS SURVEYS". Copies of all original field notes, quantity computations and drawings performed by the Contractor shall be furnished to the Contracting Officer at the site of work for use by the Contracting Officer to the extent necessary in determining the proper amount of payments due the Contractor.

13.2.3 The contract drawings represent conditions existing on the date of the survey shown on the drawings and are for information purposes only. The pre-dredge survey will be performed by the Government prior to issuance of notice to proceed and will be used in determining quantity of material for payment. Determination of quantities removed and the deductions made therefrom to determine quantities by in-place measurement to be paid in the area specified after having once been made will not be reopened, except on evidence of collusion, fraud or obvious error. No payments will be made until all computations, field notes and drawings are received for contract payment.

13.2.4 Measurement for Final Payment of Acceptance Reaches. Measurement for final payment of acceptance reaches of the total amount of material dredged will be made based on the cubic yards of material in-place, by computing the volume between the bottom surface shown by soundings of the Government survey taken before dredging and the bottom surface shown by soundings of the final Government survey compared with the neat line template, using the average-end-area method. This quantity shall include excavation performed within the allowable overdepth limits and exclude excessive dredging as specified under paragraph "OVERDEPTH AND EXCESSIVE DREDGING".

13.2.5 Payment for dredging will be made at the applicable contract unit prices bid in the schedule(s) under which contract award is made. These prices and payments thereof shall constitute full compensation for all dredging, progress surveys, quality control surveys, barge filling area surveys, sampling, testing, reporting, and disposing of all materials in accordance with the drawings and specifications.

13.2.6 Payment for Dredge Material Monitoring will be made at the applicable unit prices bid in the schedule(s) under which contract award is made. These prices and payments thereof shall constitute full compensation for all sampling, testing, monitoring, and reporting in accordance with paragraph "DREDGE MATERIAL MONITORING" and including all associated costs in connection therewith in accordance with the plans and specifications.

13.2.7 Shoaling. Shoaling occurring within the project limits prior to acceptance of any reach shall be removed by the Contractor and no additional payments will be made by the Government for dredging and disposal of this material. Shoaling occurring within the project limits after acceptance of any reach and prior to the completion of the contract shall be removed at the contract unit price for dredging, within the limit of available funds, if agreeable to both the Contractor and the Contracting Officer. The quantity of shoal to be paid for will be measured by the cubic yard by computing the volume between the surfaces shown by soundings taken after shoaling and the final survey made after the shoaled material has been removed.

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